U.S. Department of Commerce
National Institute of Standards and Technology
Gaithersburg, MD 20899

Certificate Number: 93-051A1

National Type Evaluation Program

Certificate of Conformance

for Weighing and Measuring Devices

For:

Railroad Track Scale Weighing/Load-Receiving Element, Load Cell Electronic
Models: LPR and LPRA Series
n_{max}: 5,400; e_{min} : 100 lb
Capacity: See Page 2
Platform: See Page 2
Section Capacity: See Page 2
*CLC: 50 Tons

Accuracy Class: III L

Submitted by:

Cardinal Scale Manufacturing Co.
203 East Daugherty Road
P.O. Box 151
Webb City, MO 64870
Tele: (417) 673-4631
Fax: (417) 673-5001
Contact: Stephen Langford

Standard Features and Options

The scale may consist of either one or two platforms with a length of dead space between the platforms when two platforms are used. The 13' platform is a two section scale and the 26' platform is a three section scale. The length of the dead space will depend upon the weighing requirements of the individual installation and the length of the cars being weighed.

Model No. Code and Description	XX-XX	YY	LPR or LPRA	ZZZ
	Module Lengths	Cooper Rating	Model Family	Load Cell Capacity in Thousand pounds

Load Cells: 200K load cells: Revere Transducers Model CSP (Certificate No. 88-082A1)
120K load cells: Cardinal Model SCA (Certificate No. 89-042A2)
100K load cells: Cardinal Model SCA (Certificate No. 89-042A2)

Combination vehicle/railway track scale installations must satisfy the relationship of: Nominal capacity $\leq$ CLC (N - 0.5) where N is the number of sections and $v_{min} \leq d/\sqrt{N}$ where N = number of load cells. The scale division cannot be smaller than 100 lb.

* **OPTIONAL** deck for vehicle scale weighing. The suitability of using 100-lb increments to weigh highway vehicles will be dependent upon compliance with suitability requirements of NIST Handbook 44 and local weights and measures jurisdictions.

Temperature Range: -10 to 40 °C (14 to 104 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

Effective Date: February 20, 1995

Chief, Office of Weights and Measures
Issue Date: July 27, 1995

Cardinal Scale Manufacturing Co.
Railroad Track Scale Weighing/Load-Receiving Element
Models: LPR and LPRA Series

Application: For general purpose static weighing of railroad cars. The suitability of commercial two-draft weighing on individual modules is dependent on the local weights and measures jurisdiction.

Identification: A metal identification plate is attached to the weighbridge and is located near the point where the load cell cable leaves the load-receiving element to connect with the indicating element. Compliance with CLC marking requirements must be verified for combination vehicle/railway track installations.

MODEL NUMBERS	NUMBER OF SECTIONS	MODULE LENGTHS IN FEET	SCALE CAPACITY IN TONS	SECTION CAPACITY IN TONS	SCALE WIDTH
13-13-80 LPRA-200	4	13-13	270	180	9'9"
13-26-80 LPRA-200	5	13-26	270	180	9'9"
26-26-80 LPRA-200	6	26-26	270	180	9'9"
13-13-80 LPRA-120	4	13-13	200	100	9'9"
13-26-80 LPRA-120	5	13-26	200	100	9'9"
26-26-80 LPRA-120	6	26-26	200	100	9'9"
13-13-80 LPRA-100	4	13-13	170	85	9'9"
13-26-80 LPRA-100	5	13-26	170	85	9'9"
26-26-80 LPRA-100	6	26-26	170	85	9'9"
The above models are built to AAR/A.R.E.A. Handbook specifications					
13-13-70 LPR-120	4	13-13	240	120	9'3"
13-26-70 LPR-120	5	13-26	240	120	9'3"
26-26-70 LPR-120	6	26-26	240	120	9'3"
13-13-70 LPR-100	4	13-13	200	100	9'3"
13-26-70 LPR-100	5	13-26	200	100	9'3"
26-26-70 LPR-100	6	26-26	200	100	9'3"

The model number is changed by eliminating the first pair of numbers, e.g., 13-26-80LPRA becomes 26-80LPRA-120 when a single module scale is used.

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Models: LPR and LPRA Series

The following from the AAR/A.R.E.A. Handbook are for informational purposes only:

Para. 3.3 Capacities: The multiple model scale, including those with spaces between modules, shall be treated as a single scale.

2.2.1(b) ...The nominal capacity of a scale with more than two sections shall not exceed twice the rated sectional capacity. ...

2.2.2. Rated Sectional Capacity

The rated sectional capacity of a load-cell scale should be factored in accordance with the following:

Section Capacity (Tons)	Each Load Cell Rated Capacity (lb)
35	50,000
85	100,000
180	200,000
270	300,000

The rated sectional capacity shall in no case exceed the actual sectional capacity.

Sealing: Individual load cells and the sections are calibrated in the load cell junction box for each module. A wire security seal can be threaded through a drilled head screw and a hold drilled on the flange welded to the junction box. The overall calibration is adjusted at the primary indicating element. Procedures for applying a security seal to the indicating element are on its Certificate of Conformance (CC).

Test Conditions: This CC supersedes CC 93-051 and is issued to clarify that either one or two modules may used. The scale tested consisted of two modules which were tested individually and as a pair. The original test conditions are repeated below for reference.

The Model 26-26-80 LPRA-200 was submitted for evaluation. It was interfaced to the Cardinal/Detecto Model 738 indicating element (CC Number 86-035A3) for this evaluation. An increasing and decreasing load test was performed using a total of 100,000 lb of test weights. Test loads were applied to one section in 10,000-lb increments beginning with 30,000 lb. The remaining sections were tested at 50,000 and 100,000-lb test loads. The test loads were placed at the ends of each module and over the right and left sides of each interior section. A strain load test was conducted at 212,700 lb using an empty railcar and 100,000 lb of test weights. Similar section, strain load and increasing/ decreasing load tests were conducted using 100,000 lb of test weights approximately 45 days later. The results of this evaluation indicate the scale complies with applicable requirements.

Type Evaluation Criteria Used: NIST Handbook 44, 1993 Edition

Tested By: Bill Norrs (USDA/FGIS) and Ron Flores (CA)

Update Reviewed By: C. V. Cotsoradis (NIST)